REMARKS

Claims 1, 2 and 21-39 are pending. By this Amendment, claims 1, 2, 21, 22, and 28-39 are amended.

Claims 1, 2, 21, 23-26 and 28-39 were rejected under 35 U.S.C. §102(b) over Henshaw, U.S. Patent No. 6,481,115, claims 1, 2, 20, 21, 23-31 and 33-39 were rejected under 35 U.S.C. §102(b) over Ellis, U.S. Patent No. 4,332,087 and claim 22 was rejected under 35 U.S.C. §103(a) over Henshaw. The rejections are respectfully traversed.

Henshaw and Ellis fail to disclose a rotary ring with a continuous flexible ring having scale markings provided on a surface thereof, the flexible ring being sufficiently flexible to self-retain about a circular machine part solely by elastic deformation of at least one portion thereof, as recited in claim 1, or using a taper angle for the tapered surface such that it is sufficient to form a self locking taper, as recited in claim 39.

Henshaw discloses a rotary ring 3 for use in a scale reading apparatus. Henshaw's ring 3 is described as being "thin and flexible" (col. 2, line 48) so that it can be pulled into the correct shape while mounting the rotary ring 3 onto the shaft 6. The ring 3 is provided with a taper angle α and is pushed along the shaft 6 until a good fit is obtained (col. 2, lines 27-28).

As described in Henshaw, at a taper angle of 15°, the ring 3 would not stay in place without the mounting screws to keep it in place. As explained in the attached Appendix, if the angle of the taper is greater than 14°, the ring 3 will not stay in place without being screwed to the shaft 6. Consequently, in Henshaw, if a machine part was turned on its side or upside down, the ring 3 would move or fall off the shaft 6 altogether if it is not screwed onto the shaft 6. Henshaw's ring 3 is thus not sufficiently flexible to self retain as recited in claim 1, or provide for the self locket taper of claim 39.

Henshaw's col. 2, lines 60-62 explains how the tightening of screws results in the ring 3 being locally pulled down the shaft 6 and hence outward. The loosening of the screws thus

results in the screw locally moving inwards and thus up the shaft 6 so that it no longer fits in place. Consequently, the ring 3 disclosed in Henshaw, although described as being "flexible" is not sufficiently flexible to self retain about a rotary machine part solely by elastic deformation of at least one portion thereof, as recited in claim 1, or to form a self locking taper as recited in claim 39. Henshaw's rotary ring is only retained by using mounting screws.

Furthermore, the use of mounting screws in Henshaw teaches away from using the flexibility of a ring to self retain or self lock. As described Applicants' advantages, by using the combination of features recited in claims 1 and 39, screws or other fixing means are not required in order to keep the ring in place, thus allowing the ring to be thinner and resulting in a lower profile.

In response to the arguments on page 12 of the Office Action, which states that the use of screws in Henshaw is "optional compensation for eccentricity when concentricity is not required," Applicants disagree. Henshaw's screws are required to hold the ring 3 in place on a machine part. Due to the nature of the taper of the ring 3, without the screws to hold the ring 3 in place, the ring 3 will simply move around or fall off the machine part when the machine part is moved, as previously discussed.

Ellis fails to overcome the deficiencies of Henshaw.

Ellis discloses a V-belt measuring device that accurately determines the length of a replacement belt required for a given pulley system. Ellis' device is essentially a tape measure having the same flexibility as a belt and shaped to fit into the grooves of the pulleys in the same way that the belt fits into the pulley. The user stretches the device around the pulley system and holds it at the appropriate tension in order to take a measurement of the length of the belt required to fit the pulley system.

Ellis' measuring device 21 includes a flexible elongate member having two ends, an origin end and a termination end (col. 2, lines 1 and 2) with a size indicia along its outside

surface. Ellis' device 21 must have two ends in order to fulfill its role as a tape measure. If Ellis' elongate member were a ring, it would not have ends that can be moved relative to one another in order to measure the length of the belt required.

One end of Ellis' V-belt measuring device 21has a beveled length, which, when in use, lies along a contact length 36 of the elongate member 22 (col. 4, lines 10 and 11). The beveled length is "structured for closely lying along a contact length of the flexible elongate member" (col. 2, lines 7-8). At no point in Ellis is it suggested that the two ends of the device 21 are connected/attached. In fact, Ellis explicitly states that the ends must be held together by a person in order to achieve the aim of Ellis' invention, which is to measure the length of the belt required. Ellis' device will not be able to serve its purpose if the two ends were attached together.

Therefore, Ellis' device is not a continuous ring as described in Applicants' claims 1, 29 and 39, or self retaining or locking as recited in claims 1 and 39.

Applicants' claim 1 also recites that the ring is sufficiently flexible to self retain so that no clamping force is required to keep its parts joined together. As it is clear in Ellis, Ellis' device 21 is not capable of self retaining. In fact, Ellis states that the individual doing the measuring must grasp and pull onto the device 21 (col. 4, line 16) in order to hold it in place around the pulleys. Without a person grasping the two ends of the device 21 and holding them together, they would not remain touching as they are not attached to each other.

In response to the arguments on page 12 of the Office Action, the Examiner states that the device 21 used in Ellis, once connected, results in Applicants' continuous ring. However, as discussed above, there is no disclosure in Ellis of connecting the ends of the device 21 together. The Office Action provides an example of a chain belt. However, Ellis does not disclose any attachment of the ends of the device 21. In the specific description relating to

Figs. 1 and 2 of Ellis, Ellis explicitly requires the device 21 to be held at both ends by the user of the device, thus providing further evidence that the device 21 is not connected.

With regard to the argument that the device 21 being self retaining, the only time in which Ellis' device 21 can be considered to be "closed and attached so as to form a loop" is when it is being held together by a user. Consequently, the device 21 cannot be regarded as self retaining as it is retained by the user supplying the tension to the device 21.

Henshaw and Ellis also fail to disclose a method of mounting a flexible rotary scale comprising the step of stretching or shrinking the flexible rotary scale onto a circular machine part, as recited in claim 29.

Henshaw teaches a method of mounting the rotary ring 3 onto a part of the machine. The ring 3 is provided with a tapered inner circumferential surface 5 (Fig. 2B) and is pushed along the tapered shaft 6 until a good fit is obtained (col. 2, lines 27-28). This good fit, however, does not imply that the ring 3 will remain in place by itself as Henshaw continues by describing how the mounting screws are required to keep the ring 3 in place. As described above, the angle of the taper on the ring 3 does not allow the ring to self retain.

Furthermore, the ring 3 is not stretched or shrunk on its machine part, as recited in claim 29. Henshaw's ring is simply pushed along the shaft 6 until the tapered surfaces allow no further progression and then is fixed in placed with mounting screws.

Ellis does not explicitly describe a method of stretching an elongate flexible member onto a pulley system. Furthermore, as described previously, the elongate flexible member is not in the form of a continuous ring.

It is respectfully requested that the rejections be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,

James A. Oliff
Registration No. 27,075

Scott M. Schulte
Registration No. 44,325

JAO:SMS/sxb

Attachment:
Appendix

Date: March 6, 2007

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION
Please grant any extension necessary for entry;
Charge any fee due to our Deposit Account No. 15-0461